CLAIMS

What is claimed is:

1. A method for performing a search in a content addressable memory ("CAM") device, the method comprising:

comparing a search key with compound entries in a CAM array, wherein at least one of the compound entries includes (i) a ternary CAM word having a data word and a mask word, and (ii) a mask specifier that indicates the state of the mask word, and wherein the search key includes (i) a search word component, and (ii) a search mask component, and wherein the ternary CAM word is compared with the search word component and the mask specifier is compared with the search word component; and

generating a match signal associated with a compound entry that matches the search key.

2. The method of claim 1, further comprising generating an address in the CAM array for the compound entry that matches the search key.

3. The method of claim 1, further comprising deleting the compound entry that matches the search key.

4. The method of claim 1, further comprising relocating the compound entry that matches the search key to another location in the CAM array.

5. A method for locating an entry in an array of ternary content addressable memory ("CAM") cells, the method comprising:

determining that a first group of bits of a search key match a first group of bits of the entry of the CAM array, the first group of bits of the entry having an associated group of local

mask bits; and

concurrently determining that a second group of bits of the search key match a second group of bits in the entry of the CAM array, wherein the second group of bits of the entry comprises a representation of the local mask bits.

6. The method of claim 5, wherein the second group of bits of the entry comprise the local mask bits.

7. The method of claim 5, wherein the second group of bits of the entry comprise an encoding of the local mask bits.

8. The method of claim 5, further comprising generating a match signal associated with the entry.

9. The method of claim 5, further comprising generating an address for the entry.

10. The method of claim 5, further comprising deleting the entry.

11. The method of claim 5, further comprising relocating the entry in the ternary CAM array.

12. A method for locating an entry in an array of ternary content addressable memory ("CAM") cells, the method comprising:

performing a ternary compare operation between a first field of a search key and a ternary CAM word portion of the entry in the ternary CAM array, wherein the ternary CAM word portion of the entry includes a data word and a local mask word; and

performing an unmasked compare operation between a second field of the search key and a mask specifier of the entry in the ternary CAM array, wherein the mask specifier comprises a

representation of the local mask word.

13. The method of claim 12, wherein the mask specifier comprises the local mask word.

14. The method of claim 12, wherein the mask specifier comprises an encoding of the local mask word.

15. The method of claim 12, further comprising generating a match signal associated with the entry.

16. The method of claim 12, further comprising generating an address for the entry.

17. The method of claim 12, further comprising deleting the entry.

18. The method of claim 12, further comprising relocating the entry in the ternary CAM array.